

Date: Sun, 5 Sep 93 04:30:14 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V93 #37
To: Ham-Ant

Ham-Ant Digest Sun, 5 Sep 93 Volume 93 : Issue 37

Today's Topics:

Antennas, Q and bandwidth (2 msgs)
 G5RV
Multiband Hustler on Ford Aerostar?
Questions on antenna resonance...
 T2FD Antenna

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Thu, 2 Sep 1993 20:33:22 GMT
From: mentor.cc.purdue.edu!sage.cc.purdue.edu!aj@purdue.edu
Subject: Antennas, Q and bandwidth
To: ham-ant@ucsd.edu

Q is inversely proportional to bandwidth, as you can see in the ARRL
Handbook sections dealing with making power amplifiers for the 40 and
80 meter bands. They suggest Q values of 7 for the amplifiers.

An antenna which is made of thin wire has a higher Q than one with
larger elements, extrapolating from the bandwidth figures. I wish I had
an actual formula for you, though. Anyone?

My experience has been with large-diameter elements. At 146MHz I used
one and one quarter inch diameter pipe to make a Yagi. It exhibits very
broad tuning patterns around its center frequency (the length of the
driving element is one half wavelength at 168MHz, as it was designed
for direction finding of wireless mikes and National Weather Service

transmitters for triangulating. I know this is high, but I mismeasured.
;) Due to the large diameter of the elements, it maintains a stable and
fairly sharp pattern, in addition to an excellent null, from about
145MHz to 173MHz. I didn't get a signal generator which could go higher
than that reliably.

I haven't the time to rebuild this using thin wire, but I imagine it
won't behave as nicely at these extremes.

(So people don't jump on my case, I used busy amateur band repeaters
to check that part, NWS transmitters for the 162MHz band, and a small
signal generator for the 173MHz part).

: John Dormer N9MSY
: aj@sage.cc.purdue.edu

Date: 5 Sep 1993 10:45:39 GMT
From: usc!howland.reston.ans.net!usenet.ins.cwru.edu!magnus.acs.ohio-state.edu!
wvanhorn@network.ucsd.edu
Subject: Antennas, Q and bandwidth
To: ham-ant@ucsd.edu

>One thing I've often considered doing, except that I only work
>HF-bands and this idea is more practical for VHFers, would be to make
<a 1/4-wave (or 5/8-wave) vertical using large Hi-C (or other juice
>cans, the ones which are about 6" in diameter) soldered end-to-end.
>Talk about a large diam/length ratio! Should have very LOW "Q".
>Somehow the thought of soldering 33ft worth of juice cans (much less
>drinking th

A long time ago - at least 25 years - there was a flurry of articles,
snapshots, etc. in QST about guys who made antennas from soldered beer
cans (empty). They worked fine, but the same thing could be made with
much less labor (but maybe not so much fun) with aluminum downspouting.

I can't think of any good reason to substitute fruit juice for beer!:-)

73, Van - W8UOF
wvanhorn@magnus.acs.ohio-state.edu

Date: 5 Sep 1993 02:32:49 GMT
From: usc!howland.reston.ans.net!darwin.sura.net!news-feed-2.peachnet.edu!concert!
quad.wfunet.wfu.edu!matthews@network.ucsd.edu
Subject: G5RV

To: ham-ant@ucsd.edu

CECILMOORE@DELPHI.COM (cecilmoo@news.delphi.com) wrote:

: >I know there will be some coupling of RF to the tower. What is
: >best:

: >2) Coming off the tower about 3' from a standoff then
: > straight down to another standoff (where the transformer is)
: > Then coax down to the shack.

: >Bob Levine KD1GG 7J1AIS VK2GYN

: Bob, the nature of a transmission line confines the size of the field.
: Currents flow in opposite directions in each conductor tending to
: cancel the fields. 3' is plenty. If I were you, I would be more worried
: about the 3-5 db loss in the RG-59 coax per 100' with an SWR=20 as you
: will experience with a G5RV on some of the bands. Take a look at the loss
: charts at the end of the Transmission Line chapter in the ARRL Handbook
: along with the antenna impedences from an antenna analysis program like
: ELNEC and you will throw away your coax forever with a G5RV.

: Anybody who wants to know what ELNEC and transmission line theory says
: about the G5RV, send me your e-mail address.

: 73, KG7BK, CECILMOORE@DELPHI.COM

SWR = 20 on the coax? What band have you seen a 20:1 SWR on the coax
side of the transformer? I know it's outrageous on the twin-lead
side, but my ancient Swan loads it up just fine on 80, 40, 20, 15, and
10. I would be surprised the built-in pi-network could handle a
20:1 SWR.

The antenna is new, and I haven't fully mapped the SWR, but so far it
seems a decent compromise for someone who is trying to gradually sneak
up on the neighbors.

--

Rick Matthews	matthews@wfunet.wfu.edu
Wake Forest University	919-759-5340 (Voice)
Winston-Salem, NC 27109-7507	919-759-6142 (FAX)

Date: Fri, 3 Sep 1993 10:27:33 GMT

From: pravda.sdsc.edu!news.cerf.net!usc!howland.reston.ans.net!gatech!udel!
news.udel.edu!brahms.udel.edu!penneys@network.ucsd.edu

Subject: Multiband Hustler on Ford Aerostar?

To: ham-ant@ucsd.edu

I am now driving a Ford Aerostar minivan, an excellent ham vehicle, by the way.

I want to mount my Hustler with the foldover mast and four resonators up top.

It can't be mounted on the frame under the rear bumper, because it would get in the way of the rear door opening. The door hinges at the top.

Is a ball mount on the left rear the best way?

I guess the mast will have to be folded each time I go into the garage. Also, I have a very low bridge (8'9") nearby which the antenna dragged under when bumper mounted on the previous car.

All ideas welcomed. Tnx Bob WN3K FRC

Date: 3 Sep 1993 02:10:53 -0400
From: pravda.sdsc.edu!news.cerf.net!usc!howland.reston.ans.net!noc.near.net!
news.delphi.com!news.delphi.com!not-for-mail@network.ucsd.edu
Subject: Questions on antenna resonance...
To: ham-ant@ucsd.edu

jeffj@cbnewsm.cb.att.com (jeffrey.n.jones) writes:

>Here is a question that I have. After modeling my G5RV on Mininec3
>for 40 meters it showed that the antenna impedance was 20 + 800j ohms.
>So my 17 feet of 450 ohm ladder line will transform the 20 ohms to about a
>22:1 SWR. However the antenna loads up great on 40 meters and works really
>well. I guess the question I have is, as long as there is a good chunk
>of reactance that you can use a antenna tuner to tune out can you can make a
>antenna resonant on any band no matter what the actual resistance of
>the antenna (20 ohms in this case)? On 10 meters the impedance is
>100 + 80j ohms, for obvious reasons it doesn't load up all that well.
>Thanks for any help here! 73!

>Jeff

>--

Jeff, your coax also acts as a transmission line transformer but with high losses represented by a spiral toward the center on the Smith Chart. With a coax/twinlead junction SWR of 20/1, you will lose half your power in 100 ft. of RG-59 at 7 MHz... see the loss charts at the end of the transmission line chapter in "The ARRL Handbook". My advice is to get rid of the coax and take the ladder-line all the way into a balanced antenna tuner. Ladder-line has very little loss even at high SWRs.

Cecil, KG7BK

Date: Thu, 02 Sep 93 21:27:19 PDT
From: pravda.sdsc.edu!news.cerf.net!usc!howland.reston.ans.net!spool.mu.edu!caen!
destroyer!nntp.cs.ubc.ca!mala.bc.ca!oneb!ham!emd@network.ucsd.edu
Subject: T2FD Antenna
To: ham-ant@ucsd.edu

jcox@lakes.trenton.sc.us (John Cox) writes:

> How about the Terminated Tilted Folded Dipole or T2FD? Basically,
> this antenna is a folded dipole with a terminating resistor on the leg
> opposite the feed point. Barker & Williamson (B&W) markets antennas of a
> similar construction, although the dimensions are not the same as the
> T2FD design by Countryman. I have done a fair amount of reading on the
> antenna, and now have a non-inductive terminating resistor and balun kit
> from Dayton. Any users, builders or comments?
>
> 73, John

I have built and used one, and didn't see much of an advantage to it. It
seemed to be somewhat less effective than a sloping dipole, although it
was broader banded - about a 3-1 range where I was.

There's an article in Practical Wire Antennas, an RSGB publication by
John Heys, G3BDQ, that describes it in some detail.

73, Bob.

Robert Smits
VE7EMD
Ladysmith B.C.
e-mail: emd@ham.almanac.bc.ca

There is *no* idiotproof filter.
Idiots are proof against anything!
- Richard Chycoski, VE7CVS

End of Ham-Ant Digest V93 #37
